ORDINANCE NO. 2024-021

AN ORDINANCE OF THE CITY OF ARLINGTON, WASHINGTON ADDING NEW CHAPTER 20.114 OF THE ARLINGTON MUNICIPAL CODE REGARDING ALTERNATIVE ENERGY SYSTEMS AND TECHNOLOGY UNDER CITY PLANNING NO. PLN 1181

WHEREAS, the city has proposed new regulations for Alternative Energy Systems and Technology to the City zoning code; and

WHEREAS, the Arlington Planning Commission considered the regulations at docketing meetings on February 6, 2024 and February 22, 2024, and then on July 2, 2024 and at a public hearing conducted on July 16, 2024; and

WHEREAS, the Planning Commission made findings and provided its recommendations to the City Council concerning the proposed regulations; and

WHEREAS, the City Council considered the regulations at docketing meetings on March 11, 2024 and March 18, 2024; and

WHEREAS, the City Council considered the same at a workshop held on July 22, 2024, a special meeting on July 29, 2024, and considered them along with the Planning Commission recommendations; and the City Council having determined approving said regulations was in the best interest of the City; and

WHEREAS, the regulations were presented to the Department of Commerce for comment and said Department provided comments, comments were addressed and approved for the ordinance; and

WHEREAS, the City Council has considered the proposed amendment to the municipal code and finds it to be consistent with city and state law and in the best interests of the citizens; and

NOW, THEREFORE, the City Council of the City of Arlington does hereby ordain as follows:

Section 1. A new Chapter 20.114 shall be added to the Arlington Municipal Code as shown in **Exhibit A** attached to this Ordinance:

Section 2. Severability. Should any section, paragraph, sentence, clause or phrase of this ordinance, or its application to any person or circumstance, be declared unconstitutional or otherwise invalid for any reason, or should any portion of this ordinance be pre-empted by state or federal law or regulation, such decision or pre-emption shall not affect the validity of the remaining portions of this ordinance or its application to other persons or circumstances.

Section 3. Effective Date. The title of this ordinance which summarizes the contents shall be published in the official newspaper of the City. This ordinance shall take effect and be in full force five (5) days after the date of publication as provided by law.

PASSED by the City Council of the City of Arlington and APPROVED by the Mayor this 29th day of July, 2024.

CITY OF ARLINGTON

_____
Don E. Vanney, Mayor

ATTEST:

_____
Wendy Van Der Meersche, City Clerk

APPROVED AS TO FORM:

_____
Steven J. Peiffle, City Attorney

Chapter 20.114

ALTERNATIVE ENERGY SYSTEMS AND TECHNOLOGIES

Sections:

Part I. Energy Storage Systems

20.114.010 Authority

This Energy Storage System code is adopted pursuant to provisions WAC 51-54A-1207, NFPA 111, NFPA 68, NFPA 69, NFPA 70, NFPA 76, NFPA 855, UL 9540, UL 9540A, UL 1642

20.114.015 – Purpose and Intent

Although this code addresses numerous types of Energy Storage Systems, the City of Arlington is currently only permitting Battery Energy Storage Systems. The purpose and intent of this code is to ensure that Energy Storage Systems are installed and maintained to the most current International Building Code, International Residential Code, National Electric Code, International Fire Code and NFPA Standards that are available. This code provides a regulatory framework for the safe installation and use of energy storage systems with the following objectives:

a. To ensure the public health, safety, welfare and quality of life of citizens is maintained.
b. To provide for the correct designation of properties allowing for the construction, operation and maintenance of energy storage systems.
c. To ensure compatible land uses in the vicinity of the areas that may be affected by energy storage systems.
d. To mitigate the potential impacts of energy storage systems on environmental resources such as aquafers, critical areas, forests, wildlife or other protected resources.
e. To support the transition to renewable energy sources.

20.114.020 – General Requirements

a. All proposed energy storage systems shall be designed, manufactured, and tested to meet the criteria required by UL 9540, NFPA 111 or the most current accepted certification process, and UL 9540A, if the energy storage system utilizes batteries as part of its operation.
b. Energy storage system capacities, including array capacity and separation, are limited to the thresholds contained in NFPA 855.
c. A land use permit, building permit and electrical permit shall be required for installation of all energy storage systems.

20.114.025 – Plan and Specification Submittal Requirements

a. Location and layout diagram of the room or area in which the ESS is to be installed.
b. Details on hourly fire-resistant-rated assemblies provided or relied upon in relation to the ESS.
c. The quantities and types of ESS units
d. Manufacturer's specifications, ratings, and listings of ESS
e. Description of energy storage management systems and their operation
f. Location and content of required signage
g. Details on fire suppression, smoke or fire detection, gas detection, thermal management, ventilation, exhaust, and deflagration venting systems, if provided
h. Support arrangement associated with the installation, including any required seismic support.

20.114.030 – Additional Required Information

a. Fire and explosion testing data in accordance with Section 20.114.100.
b. Hazard mitigation analysis (HMA) in accordance with Section 20.114.095.
c. Calculations or modeling data to determine compliance with NFPA 68 and NFPA 69 in accordance with Section 20.114.100.
d. Other test data, evaluation information, or calculations as required elsewhere in this standard.
e. If modeling data is provided, validation of the modeling results shall also be included.

20.114.035 – Operation and Maintenance Manual Requirements

a. An operations and maintenance manual shall be provided to both the ESS owner or their authorized agent and system operator before the system is put into operation and includes the following:
b. Submittal data stating the ESS size and selected options for each component of the system.
c. Manufacturer's operation manuals and maintenance manuals for the entire ESS or for each component of the system requiring maintenance that clearly identify the required routine maintenance actions.
d. Contact information for a contracted service agency or responsible in-house personnel.
e. A narrative of how the ESS and its components and controls are intended to operate, including recommended operational set points.
f. A service record log that lists the schedule for all required service and maintenance actions with space for logging such actions that can be completed over time.
g. The operation and maintenance documentation shall include the following:
    1. Procedures for the safe startup of the ESS system and associated equipment.
    2. Procedures for inspection and testing of associated alarms, interlocks, and controls.
    3. Procedures for maintenance and operation of the following, where applicable:
        i. Energy storage management systems (ESMS)
        ii. Fire protection equipment and systems.
        iii. Spill control and neutralization systems.
        iv. Exhaust and ventilation equipment and systems.
        v. Gas detection systems
        vi. Other required safety equipment and systems
    4. Response considerations similar to a safety data sheet (SDS) that address response safety concerns and extinguishment where an SDS is not required.
    5. An instruction that equipment or system changes to the installation are required to be recorded by updating any engineering documentation.
h. SDS for hazardous materials contained in the ESS shall be posted within sight of the disconnecting means of any ESS or at a location approved by the City of Arlington
    1. For ESS located outdoors, a means shall be provided to protect the SDS from the weather.
i. Where the operations and maintenance documentation calls for detailed procedures to be used for specific scheduled operational checks or assessments, an operations record that includes data associated with configurable system settings, system start-up, system shutdown (including emergency shutdown), and long-term shutdown (storage mode) shall be maintained by the system owner or their designated agent and be made available to the City of Arlington upon request.
j. The operations record shall be kept in a readily accessible location, or a sign indicating where the record is located shall be posted adjacent to the system.
k. The operations and maintenance manual shall be prepared prior to final approval of the ESS and be readily accessible to personnel responsible for the ESS.
l. A copy of the operations and maintenance manual shall be placed in an approved location to be accessible to the Fire Department, emergency responders, and the City of Arlington.

20.114.040 – System Maintenance

a. The ESS shall be maintained in accordance with the system manufacturer's instructions.
b. The maintenance documentation shall include a detailed maintenance schedule covering all affected equipment and the activities to be performed.

c. Maintenance documentation indicating the maintenance action taken, the date of the action, who implemented the action, and the results associated with the action shall be maintained as required by Section 20.114.035
d. Maintenance documentation shall record information on any repair, renewal, or renovation made to the ESS.

20.114.045 – System Training

a. Training shall be provided to all those responsible for system operation and maintenance.
b. Training in system operation and maintenance shall be provided by the system owner or their designated agent.
c. If any recommissioning of the system is conducted, training on any changes to the operation and maintenance documentation shall be provided.
d. Training records of site operations and maintenance personnel shall be retained and accessible to the City of Arlington, indicating the training taken, the name(s) of those taking the training, and the training date.

20.114.050 – System Testing

a. System testing shall be performed when required by the operating instructions or maintenance documentation in accordance with testing procedures provided by the ESS manufacturer.
b. A record of all testing shall be maintained in accordance with the requirements in Section 20.114.035.
c. Testing records shall be permitted to be made available electronically.

20.114.055 – Commissioning Plan

a. The system installer or commissioning agent shall prepare a written commissioning plan that provides a description of the means and methods necessary to document and verify that the system and its associated controls and safety systems, as required by this standard, are in proper working condition.
b. The commissioning plan shall include, but not be limited to, the following information:
    1. An overview of the commissioning process developed specifically for the ESS to be installed and narrative description of the activities to be conducted.
    2. Roles and responsibilities for all those involved in the design, commissioning, construction, installation, or operation of the system(s)
    3. Means and methods whereby the commissioning plan will be made available during the implementation of the ESS project(s)
    4. Plans and specifications necessary to understand the operation of the ESS and all associated operational controls and safety systems.
    5. A detailed description of each activity to be conducted during the commissioning process, who will perform each activity, and at what point in time the activity is to be conducted.
    6. Procedures to be used in documenting the proper operation of the ESS and all associated operational controls and safety systems.
    7. Testing for any required fire detection or suppression and thermal management, ventilation, or exhaust systems associated with the installation and verification of proper operation of the safety controls.

8. The following documentation:
    i. Commissioning checklist
    ii. Relevant operational testing forms
    iii. Necessary commissioning logs
    iv. Progress reports
9. Means and methods whereby facility operation and maintenance staff will be trained on the system.
10. Identification of personnel who are qualified to service and maintain the system and respond to incidents involving each system.
11. A decommissioning plan meeting the provisions of Section 20.114.070 that covers the removal of the system from service and from the facility in which it is located and information on disposal of materials associated with each ESS.

20.114.060 – Commissioning Test

a. ESS shall be evaluated for their proper operation by the system installer in accordance with the manufacturer's instructions, the commissioning plan, and the requirements of this section after the installation is complete but prior to final approval.
b. System testing shall be conducted as a component of the commissioning process and include functional performance testing of the ESS that demonstrates that the installation and operation of the system and associated components, controls, and safety-related systems are in accordance with approved plans and specifications and that the operation, function, and maintenance serviceability for each of the commissioned ESS is confirmed.

20.114.065 – Commissioning Report

a. The commissioning report shall be provided by the system installer or commissioning agent to the system(s) owner and the City of Arlington prior to final inspection and approval.
b. The commissioning report shall document the commissioning process and the results in accordance with Section 20.114.065 (c) (d) and (e).
c. A commissioning report shall summarize the commissioning process and verify the proper operation of the system and associated operational controls and safety systems.
d. The report shall include the final commissioning plan, the results of the commissioning process, and a copy of the plans and specifications associated with the as-built system design and installation.
e. The report shall include any issues identified during commissioning and the measures taken to resolve them.

20.114.070 – Decommissioning Plan

a. Prior to decommissioning, the owner of an ESS or their designated agent(s) shall prepare a written decommissioning plan complying with Section 20.114.070 (d) that provides the organization, documentation requirements, and methods and tools necessary to indicate how the safety systems as required by this standard and the ESS and its components will be decommissioned, and the ESS removed from the site.
b. Lead-acid and nickel-cadmium battery systems less than 50 V ac, 60 V dc that are in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities and located outdoors or in building spaces or walk-in units used exclusively for such installations that are in compliance with NFPA 76 shall be permitted to have a decommissioning plan in compliance with recognized industry practices in lieu of complying with 20.114.070 (d).

c. Lead-acid and nickel-cadmium battery systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utilities and located outdoors or in building spaces used exclusively for such installations shall be permitted to have a decommissioning plan complying with applicable governmental laws and regulations in lieu of complying with 20.114.070 (d).
d. The decommissioning plan shall be provided to the City of Arlington and include the following information:
    1. An overview of the decommissioning process developed specifically for the ESS that is to be decommissioned.
    2. Roles and responsibilities for all those involved in the decommissioning of the ESS and their removal from the site.
    3. Means and methods in the decommissioning plan submitted during the permitting process to be made available at a point in time corresponding to the decision to decommission the ESS.
    4. Plans and specifications necessary to understand the ESS and all associated operational controls and safety systems, as built, operated, and maintained.
    5. A detailed description of each activity to be conducted during the decommissioning process and who will perform that activity and at what point in time.
    6. Procedures to be used in documenting the ESS and all associated operational controls and safety systems that have been decommissioned.
    7. Guidelines and format for a decommissioning checklist and relevant operational testing forms and necessary decommissioning logs and progress reports
    8. A description of how any changes to the surrounding areas and other systems adjacent to the ESS, including, but not limited to, structural elements, building penetrations, means of egress, and required fire detection and suppression systems, will be protected during decommissioning and confirmed as being acceptable after the system is removed.

20.114.075 – Decommissioning Process

a. The City of Arlington shall be notified prior to decommissioning an ESS.
b. The ESS shall be decommissioned by the owner of the ESS or their designated agent(s) in accordance with the decommissioning plan.

20.114.080 – Decommissioning Report

a. A decommissioning report shall be prepared by the ESS owner or their designated agent and summarize the decommissioning process of the system and associated operational controls and safety systems.
b. The report shall include the final decommissioning plan and the results of the decommissioning process.
c. The report shall include any issues identified during decommissioning and the measures taken to resolve them.
d. The decommissioning report shall be retained by the owner and provided to the City of Arlington upon request.

20.114.085 – Recommissioning of Existing Systems

a. Recommissioning shall meet the provisions of Section 20.114.065 and include the entire system with issuance of a new commissioning report, identification of any new issues and resolutions documentation, and identification of any revisions to the operations and maintenance documentation.

b. When alterations, additions, repositioning, or renovations to the system or any of its components are warranted, they shall be permitted in accordance with Sections 20.114.020 – 20.114.050 and be performed by qualified entities and the system recommissioned in accordance with Sections 20.114.055 – 20.114.065.
c. Repairs or renewals to systems utilizing identical components shall not require recommissioning.
d. Listed ESS that has been modified in the field beyond the field-installed options that are part of the listing shall be investigated and found suitable by the organization that listed the equipment.

20.114.090 – Emergency Planning and Training

a. For ESS installations that exceed the maximum stored energy limits of Table 20.114.090T, emergency planning and training shall be provided by the owner of the ESS or their authorized representative so that ESS facility operations and maintenance personnel and emergency responders can address foreseeable hazards associated with the on-site systems.
b. For ESS installations that exceed the maximum stored energy limits of Table 20.114.090T, an emergency operations plan and associated training shall be established, maintained, and conducted by ESS facility operations and maintenance personnel.
c. An emergency operations plan shall be readily available for use by facility operations and maintenance personnel.
d. For normally occupied facilities, the emergency operations plan shall be on site.
e. The plan shall be updated when conditions that affect the response considerations and procedures change.
f. The emergency operations plan shall include the following:
    1. Procedures for safe shutdown, de-energizing, or isolation of equipment and systems under emergency conditions to reduce the risk of fire, electric shock, and personal injuries, and for safe start-up following cessation of emergency conditions.
    2. Procedures for inspection and testing of associated alarms, interlocks, and controls.
    3. Procedures to be followed in response to notifications of system alarms or out-of-range conditions that could signify potentially dangerous conditions, including shutting down equipment, summoning service or repair personnel, and providing agreed-upon notification to fire department personnel, if required.
    4. Emergency procedures to be followed in case of fire, explosion, release of liquids or vapors, damage to critical moving parts, or other potentially dangerous conditions.
    5. Response considerations similar to a safety data sheet (SDS) that will address response safety concerns and extinguishment when an SDS is not required.
    6. Procedures for dealing with ESS equipment damaged in a fire or other emergency event, including contact information for personnel qualified to safely remove damaged ESS equipment from the facility.
    7. Other procedures as determined necessary by the City of Arlington to provide for the safety of occupants and emergency responders.
    8. Procedures and schedules for conducting drills of these procedures.

20.114.095 – Installation

a. Maximum Stored Energy: ESS in the following locations shall comply with 20.114.095 as follows:
    1. Fire areas within non-dedicated-use buildings containing ESS shall not exceed the maximum stored energy values in table 20.114.095T except as permitted by Section 20.114.095(i).
    2. Outdoor ESS installations in locations near exposures shall not exceed the maximum stored energy values in table 20.114.095T except as permitted by 20.114.105(ii).

3. ESS installations in open parking garages and on rooftops of buildings shall not exceed the maximum stored energy values in table 20.114.095T except as permitted by 20.114.095(ii).
4. Mobile ESS equipment as covered by NFPA 855 Chapter 9 Section 9.5.3.2 shall not exceed the maximum stored energy values in table 20.114.095T except as permitted by Section 20.114.95(ii).

b. Table 20.114.095T: Maximum Stored Energy

ESS Type	**Maximum Stored Energy[a] (kWh)**
Lead-acid batteries, all types	Unlimited
Nickel batteries[b]	Unlimited
Lithium-ion batteries, all types	600
Sodium nickel chloride batteries	600
Flow batteries[c]	600
Other battery technologies	200
Storage capacitors	20

[a]For ratings in amp-hrs, kWh should equal maximum rated voltage multiplied by amp-hr rating divided by 1000.
[b]Nickel battery technologies include nickel cadmium (Ni-Cad), nickel metal hydride (Ni-MH), and nickel zinc (Ni-Zn).
[c]Includes vanadium, zinc-bromine, polysulfide, bromide, and other flowing electrolyte-type technologies.

i. Where approved by the City of Arlington, fire areas in non-dedicated-use buildings containing ESS that exceed the amounts in table 20.114.095T shall be permitted based on a hazard mitigation analysis in accordance with Section 20.114.100 and fire and explosion testing complying with Section 20.114.105.
ii. Where approved by the City of Arlington, outdoor ESS installations, ESS installations in open parking garages and on rooftops of buildings, and mobile ESS equipment that exceed the amounts in table 20.114.095T shall be permitted based on a hazard mitigation analysis in accordance with Section 20.114.100 and fire and explosion testing in accordance with Section 20.114.105.
iii. Where a single fire area within a building or walk-in unit contains a combination of energy systems covered in table 20.114.095T, the maximum stored energy per fire area shall be determined based on the sum of percentages of each type divided by the maximum stored energy of each type.
iv. The sum of the percentages calculated in Section 20.114.095(iii) shall not exceed 100 percent except as permitted in Section 20.114.095(i) or Section 20.114.095(h).

c. Size and Separation.
i. ESS shall be comprised of groups with a maximum stored energy of 50 kWh each.
ii. Each group shall be spaced a minimum of 3 ft (0.9 m) from other groups and from walls in the storage room or area.
iii. The AHJ shall be permitted to approve groups with larger energy capacities or smaller group spacing based on performance criteria from fire and explosion testing complying with Section 20.114.105(e).

20.114.100 – Hazard Mitigation Analysis (HMA)

a. A hazard mitigation analysis shall be provided to the City of Arlington for review and approval where any of the following conditions are present:
    1. Technologies not specifically addressed in this Chapter are provided.
    2. More than one ESS technology is provided in a single fire area where adverse interaction between the technologies is possible.
    3. Where allowed as a basis for increasing maximum stored energy as specified in 20.114.095(i) and 20.114.095(ii).
    4. Where required by the City of Arlington to address a potential hazard with an ESS installation that is not addressed by existing requirements.
    5. Where required for existing lithium-ion ESS systems that are not UL 9540 listed.
    6. Where required for outdoor lithium-ion battery ESS systems.
    7. The hazard mitigation analysis shall evaluate the consequences of the following failure modes and others deemed necessary by the City of Arlington:
        i. A thermal runaway or mechanical failure condition in a single ESS unit.
        ii. Failure of an energy storage management system or protection system that is not covered by the product listing failure modes and effects analysis (FMEA)
        iii. Failure of a required protection system including, but not limited to, ventilation (HVAC), exhaust ventilation, smoke detection, fire detection, fire suppression, or gas detection.

20.114.105 – Electrochemical Energy Storage Systems

a. The requirements of this chapter shall apply to installations of electrochemical ESS, including, but not limited to, battery ESS and electrochemical double-layer capacitator (EDLC) ESS.
b. This chapter shall not apply to surge capacitors installed in accordance with Article 460 of *NFPA 70*.
c. This chapter shall not apply to capacitors and capacitor equipment for electric utilities and industrial facilities used in applications such as flexible ac transmission (FACTS) devices, filter capacitor banks, power factor correction, and standalone capacitor banks for voltage correction and stabilization.
d. Unless modified by this chapter, the requirements of Sections 20.114.020 – 20.114.100 shall also apply.
e. Where required elsewhere in this chapter, fire and explosion testing in accordance with Section 20.114.105 shall be conducted on a representative ESS in accordance with UL 9540A or equivalent test standard.
f. Lead-acid and nickel-cadmium batteries used in standby power systems and listed to UL 1973 shall not require UL 9540A testing when they are installed with a charging system that is listed to UL 1012, UL 60950-1, or UL 62368-1, or a UPS listed to UL 1778.
g. The testing shall be conducted or witnessed and reported by an approved testing laboratory to characterize the composition of the gases generated and show that a fire involving one ESS unit will not propagate to an adjacent unit.
h. The representative cell, modules, and units tested, including any optional integral fire suppression system, shall match the intended installation configuration other than the addition of the cell failure mechanism utilized for cell thermal runaway initiation.
i. The testing shall include evaluation of deflagration mitigation measures when designed into ESS cabinets.
j. The complete test report and its supporting data shall be provided to the AHJ for review and approval.

k. The test report shall be accompanied by a supplemental report prepared by a registered design professional with expertise in fire protection engineering that provides interpretation of the test data in relation to the installation requirements for the ESS.

20.114.110 – Fire Control and Suppression

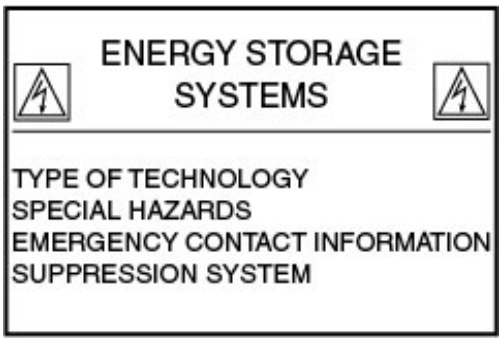
a. Where required elsewhere in this chapter, fire control and suppression for rooms or areas within buildings and outdoor walk-in units containing ESS shall be provided in accordance with this section.
b. Lead-acid and nickel-cadmium battery systems less than 50 V ac, 60 V dc that are in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities and located outdoors or in building spaces used exclusively for such installations that comply with NFPA 76 shall not be required to have a fire suppression system installed.
c. Lead-acid battery systems in uninterruptable power supplies listed and labeled in accordance with the application utilized for standby power applications, which is limited to not more than 10 percent of the floor area on the floor on which the ESS is located, shall not be required to have a fire suppression system installed.
d. Lead-acid and nickel-cadmium battery systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility and located outdoors or in building spaces used exclusively for such installations shall not be required to have a fire suppression system installed.
e. When approved by the City of Arlington, ESS shall be permitted to be installed in open parking garages without the protection of an automatic fire suppression system where fire, explosion, and fault condition testing documents the system does not present an exposure hazard to parked vehicles when installed in accordance with manufacturer's instructions and this standard.
f. When approved by the City of Arlington, ESS shall be permitted to be installed in ESS dedicated-use buildings without the protection of an automatic fire control and suppression system where fire and explosion testing conducted in accordance with Section 20.114.105 documents that an ESS fire does not compromise the means of egress and does not present an exposure hazard to buildings, lot lines, public ways, stored combustible materials, hazardous materials, high-piled stock, and other exposure hazards not associated with electrical grid infrastructure.
g. When approved by the City of Arlington, ESS shall be permitted to be installed in outdoor walk-in enclosures without the protection of an automatic fire control and suppression system where fire and explosion testing conducted in accordance with 20.114.105 documents that an ESS fire does not compromise the means of egress and does not present an exposure hazard.
h. Where more than one ESS technology is present within a fire area, the fire protection systems shall be designed to protect the greatest hazard.

20.114.115 – Signage

a. Approved signage shall be provided in the following locations:
    1. On the front of doors to rooms or areas containing ESS or in approved locations near entrances to ESS rooms.
    2. On the front of doors to outdoor occupiable ESS containers.
    3. In approved locations on outdoor ESS that are not enclosed in occupiable containers or otherwise enclosed.

b. The required signage shall be in compliance with ANSI Z535 and include the following information as shown below:
    1. "Energy Storage Systems" with symbol of lightning bolt in a triangle.
    2. Type of technology associated with the ESS.
    3. Any special hazards associated with the specific type of ESS.
    4. Type of suppression system installed in the area of the ESS.
    5. Emergency contact information.

c.



20.114.120 – One and Two-Family Dwellings and Townhouse Units

a. General- ESS installations with a rating of 1 kWh (3.6 MJ) or greater and associated with one- or two-family dwellings or townhouse units shall comply with the requirements of this chapter.
b. Equipment Listings - ESS shall be listed and labeled in accordance with UL 9540.
c. Installation - ESS shall be installed in accordance with the manufacturer's instructions and their listing.
    1. ESS Spacing - Individual ESS units shall be separated from each other by a minimum of 3 ft (914 mm) unless smaller separation distances are documented to be adequate based on fire and explosion testing complying with Section 20.114.120(l).
    2. Labeling - A label containing emergency contact information for the qualified service and maintenance providers shall be provided on the exterior of the installed ESS.
d. Locations - ESS shall only be installed in the following locations:
    1. In attached garages separated from the dwelling unit living area and sleeping units in accordance with the local building code.
    2. In detached garages and detached accessory structures.
    3. Outdoors on exterior walls or on the ground located a minimum of 3 ft (914 mm) from doors and windows directly entering the dwelling unit.
    4. In enclosed utility closets and storage or utility spaces where approved by the City of Arlington.
    5. If the room or space where the ESS is to be installed is not finished or noncombustible, the walls and ceilings of the room or space shall be protected with not less than 5⁄8 in. Type X gypsum board.
    6. ESS shall not be installed in sleeping rooms, or in closets or spaces opening directly into sleeping rooms.
e. Energy Ratings - Individual ESS units shall have a maximum stored energy of 20 kWh. The aggregate rating of the ESS shall not exceed the following for each location listed:
    1. 40 kWh within utility closets, basements, and storage or utility spaces.
    2. 80 kWh in attached or detached garages and detached accessory structures.
    3. 80 kWh where outdoor wall mounted.
    4. 80 kWh where outdoor ground mounted.

f. Electrical Installation - ESS shall be installed in accordance with NFPA 70.
    1. Inverters shall be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing.
    2. Systems connected to the utility grid shall use inverters listed for utility interaction.
g. Fire Detection
    1. Rooms and areas within dwelling units, basements, and attached garages in which ESS are installed shall be protected by interconnected smoke alarms in accordance with the local building code.
    2. A heat detector or alarm, listed and interconnected to the smoke alarms, shall be installed in locations within dwelling units and attached garages where smoke alarms cannot be installed in accordance with their listing.
h. Protection from Impact - ESS installed in a location subject to vehicle damage shall be protected by approved barriers. Vehicle impact protection consisting of guard posts or other approved means shall be provided where ESS are subject to impact by motor vehicles. For residential garages, ESS shall not be installed in a location subject to damage from impact by a motor vehicle.
    1. When guard posts are installed, they shall be designed as follows:
        i. Posts shall be constructed of steel not less than 4 in. (100 mm) in diameter.
        ii. Posts shall be filled with concrete.
        iii. Posts shall be spaced not more than 4 ft (1.2 m) on center.
        iv. Posts shall be set not less than 3 ft (0.9 m) deep in a concrete footing of not less than 15 in. (380 mm) diameter.
        v. The top of the posts shall be set not less than 3 ft (0.9 m) above ground.
        vi. Posts shall be located not less than 3 ft (0.9 m) from the ESS.
i. Exhaust Ventilation - Indoor installations of ESS that include batteries that produce hydrogen or other flammable gases during charging shall meet the exhaust ventilation requirements in accordance with NFPA 855 Chapter 9.6.5.1.
j. ESS Toxic and Highly Toxic Gas Release During Normal Use - ESS that have the potential to release toxic or highly toxic gas during charging, discharging, and normal use conditions shall be installed outdoors.
k. Test Reports - ESS installed in accordance with Section 20.114.120 shall be provided with a product-level evaluation by an approved qualified person with expertise in energy storage as a supplemental safety document to be used by the City of Arlington and the installing contractors.
l. Fire and Explosion Testing - Where required by Section 20.114.095 (c)(ii), fire and explosion testing shall be conducted on a representative ESS in accordance with UL 9540A or equivalent test standards.
    1. The complete UL 9540A or equivalent test report shall be provided to the authority having jurisdiction, including the cell, module, and unit level.
    2. Lead-acid and nickel-cadmium batteries used in standby power systems and listed to UL 1973 shall not require UL 9540A testing when installed with a charging system listed to UL 1012, UL 60950-1, or UL 62368-1, or a UPS listed to UL 1778.
    3. The testing shall be conducted, witnessed, and reported by an approved testing laboratory to characterize the composition of the gases generated and show that a fire involving one ESS unit will not propagate to an adjacent unit.
    4. The representative cell, modules, and units tested, including any optional integral fire suppression system, shall match the intended installation configuration other than the addition of the cell failure mechanism utilized for cell thermal runaway initiation.

5. The testing shall include evaluating deflagration mitigation measures when designed into ESS cabinets.

Part II – Battery Energy Storage Systems

20.114.125 - Introduction

a. Batteries are a unique class of energy storage system infrastructure. Because the basic unit is a small cell or pouch, a BESS is modular in nature and can be configured in virtually any size. Additionally, a BESS has relatively limited infrastructure requirements, needing a concrete pad to sit on and a connection to the electric grid. These two factors-modularity and limited infrastructure needs-means that a BESS can be built virtually anywhere, including in close proximity to existing commercial and residential uses.
b. Battery Energy Storage Systems can consist of numerous battery types, listed within the definitions section, but lithium-ion batteries are currently the most prevalent technology and can be configured as a large-scale system consisting of several acres, or a small system installed in the garage of a home or anything in between. The energy density of lithium-ion batteries is its key benefit, it is also its greatest risk. Lithium-ion batteries store large amounts of energy in a small space coupled with having a flammable electrolyte, having the potential to become unstable and enter thermal runaway- a state in which the chemical reactions within the battery release excess energy and gasses that cause battery failure and fires.

20.114.130 – Authority

This Battery Energy Storage System code is adopted pursuant to provisions within WAC 51-54A-1207, NFPA 111, NFPA 68, NFPA 69, NFPA 70, NFPA 76, NFPA 855, UL 9540, UL 9540A, UL 1642

20.114.135 – General Requirements

a. A Battery Energy Storage System (BESS) permit, in conjunction with a building permit, issued by the City of Arlington, an electrical permit, issued by the Washington State Department of Labor and Industries shall be required for the installation of all battery energy storage systems. In addition, a land use permit, issued by the City of Arlington, shall be required for the installation of all Tier 2 and Tier 3 battery energy storage systems.
b. All battery energy storage systems, all Dedicated Use Buildings, and all other buildings or structures that (a) contain or are otherwise associated with a battery energy storage system and (b) subject to the requirements of the most current editions of the International Codes (IBC, IFC, IRC) including applicable state amendments, and the most current editions of both the National Electrical Code (NEC). All battery energy storage systems shall comply with NFPA 855, the standard for the installation of Stationary Energy Storage Systems, and all equipment shall be UL 9540 listed.
c. An approved energy storage management system shall be provided for battery technologies other than lead-acid and nickel cadmium for monitoring and balancing cell voltages, currents, and temperatures within the manufacturer's specifications. The system shall transmit an alarm signal to an approved location if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected.

20.114.140 – Permitting Requirements for Tier 1 Battery Energy Storage Systems

Tier 1 Battery Energy Storage Systems are allowed in all zoning districts, subject to the applicable requirements of the most current editions of the IRC, IBC, NEC, NFPA 70, NFPA 855, and all equipment shall be UL 9540 listed. Tier 1 systems are subject to minor floor plan/site plan review as required in the BESS Permit. Tier 1 systems, if installed outside a structure, shall meet all established setbacks for the zone they are within, be protected by fencing and screened from view by adjacent property and the public Right of Way.

20.114.145 – Permitting Requirements for Tier 2 Battery Energy Storage Systems

Tier 2 Battery Energy Storage Systems are allowed, in conjunction with a Special Use Permit, within the Highway Commercial (HC), Business Park (BP) Light Industrial (LI) and General Industrial (GI) zones, subject to the applicable requirements of the most current edition of the IEC, IBC, NEC, and NFPA 855., and are subject to administrative site plan review. Tier 2 systems shall be set back a minimum of fifty (50) feet from adjacent properties, provide security fencing and be screened from view from adjacent property and public Right of Way.

20.114.150 – Permitting Requirements for Tier 3 Battery Energy Storage Systems

a. Tier 3 Battery Energy Storage Systems are allowed only in General Industrial (GI) zones, in conjunction with a Conditional Use Permit. Tier 3 systems shall be set back five hundred (500) feet from any residentially zoned property, provide security fencing, and be screened from view from adjacent property and the public Right of Way. All Tier 3 Battery Energy Storage Systems shall adhere to the most current edition of the following Codes, Standards and Test Methods:
    1. 2021 International Fire Code® (IFC)
    2. 2021 NFPA 1, Fire Code (NFPA 1)
    3. 2023 NFPA 855, *Standard for the Installation of Stationary Energy Storage Systems* (NFPA 855).
    4. 2018 NFPA 68, *Standard on Explosion Protection by Deflagration Venting* (NFPA 68)
    5. 2019 NFPA 69, *Standard on Explosion Prevention Systems* (NFPA 69)
    6. IEC 60529, *Degrees of Protection Provided by Enclosures*, 2.2 Edition, January 2019 (IP Code)
    7. IEC 62619, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications*, Edition 1.0, 2017 (IEC 62619)
    8. IEC 62933-5-2, *Electrical energy storage (EES) systems - Part 5-2: Safety requirements for grid-integrated EES systems - Electrochemical-based systems*, April 15, 2020 (IEC 62933-5-2).
    9. UL 1642, *Lithium Batteries, Edition 6*, September 29, 2020 (UL 1642).
    10. UL 1973, *Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications*, Edition 2, February 7, 2018 (UL 1973).
    11. UL 9540, *Standard for Safety of Energy Storage Systems and Equipment*, Edition 2, February 27, 2020 (UL 9540).
    12. UL 9540A, *Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems*, Edition 4, November 12, 2019 (UL 9540A).

20.114.155 – Definitions

As used in this Chapter, the following terms shall have the meanings indicated:

Authority Having Jurisdiction (AHJ): The organization, agency, or individual responsible for enforcing codes, standards, and regulations related to building construction, fire prevention, and life safety.

American National Standards Institute (ANSI): A private, non-profit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States. ANSI standards are not mandatory by law, but they are widely used as the foundation for industry standards and best practices. Many OSHA standards reference ANSI standards and using products that meet ANSI standards can help comply with OSHA requirements.

Ancillary Services: Support services provided by energy resources or systems to help maintain grid stability, reliability, and efficiency. Examples include frequency regulation, voltage support, and spinning reserves.

Bi-directional Inverter: An inverter that can convert electricity between alternating current (AC) and direct current (DC) in both directions, enabling the charging and discharging of energy storage systems, and the integration of renewable energy sources and electric vehicles with the grid.

Battery Degradation: The gradual decline in the performance and capacity of a battery over time, typically resulting from factors such as the number of charge and discharge cycles, depth of discharge, and operating conditions, such as temperature and humidity.

Battery Energy Storage System: A rechargeable energy storage system consisting of electrochemical storage batteries, battery chargers, controls and associated electrical equipment designed to provide electrical power to a building. The system is typically used to provide standby or emergency power, an uninterruptable power supply, load shedding, load sharing or similar capabilities. A battery energy storage system is classified as a Tier 1, Tier 2, or Tier 3 battery energy storage system as follows:

a. *Tier 1* (Residential-Scale) battery energy storage systems have a maximum stored energy capacity less than or equal to 20 kWh and, if in a room or enclosed area, consist of only a single energy storage system technology. The aggregate rating of the ESS shall not exceed the following for each location listed:
    a. 40 kWh within utility closets, basements, and storage or utility spaces
    b. 80 kWh in attached or detached garages and detached accessory structures.
    c. 80 kWh where outdoor wall mounted.
    d. 80 kWh where outdoor ground mounted.
b. *Tier 2* (Medium -Scale/Commercial) battery energy storage systems have an aggregate energy capacity greater than 40 kWh up to 600 (kWh).
c. *Tier 3* (Industrial-Scale/Public Utility) battery energy storage systems having an aggregate energy capacity greater than 600 kWh, up to, but not exceeding 200 mega-watt hours (MWh), or battery energy storage systems with more than one storage battery energy technology is provided in a room or enclosed area. An HMA shall be required for lithium-ion ESS that exceed 600 kWh (2,160 MJ) for outdoor ESS installations, ESS installations in open parking garages and on rooftops of buildings, and mobile ESS equipment.

Battery Storage: Battery storage systems store energy generated by resources, like hydro, solar or wind, for use during peak demand or when renewable generation is low. This helps balance the grid and reduce reliance on fossil fuels.

Battery Types: For the purposes of this code, certain types are defined as follows:

Flow battery: A type of storage battery that includes chemical components dissolved in two different liquids. Ion exchange, which provides the flow of electrical current, occurs through the membrane while both liquids circulate in their respective spaces.

Lead-acid battery: A storage battery that is comprised of lead electrodes immersed in a solution of water and sulphuric acid electrolyte.

Lithium metal polymer battery: A storage battery that is similar to the lithium-ion battery except that it has a lithium metal anode in the place of the traditional carbon or graphite anode.

Lithium-ion battery: A storage battery with lithium ions serving as the charge carriers of the battery. The electrolyte is a polymer mixture of carbonates with an inorganic salt and can be in a liquid or a gelled polymer form. Lithiated metal oxide is typically a cathode and forms of carbon or graphite typically form the anode.

Nickel-cadmium (Ni-Cd) battery: An alkaline storage battery in which the positive active material is nickel oxide, the negative electrode contains cadmium, and the electrolyte is a solution of water and potassium hydroxide.

Nickel-metal hydride (Ni-MH): An alkaline storage battery in which the positive active material is nickel oxide, the negative electrode is an intermetallic compound, and the electrolyte is usually potassium hydroxide.

Stationary Storage Battery: A group of electrochemical cells and associated power conversion systems interconnected to supply AC or DC power to a suitably connected electrical load, designed for service in a permanent location.

Behind-the-Meter (BTM): A term used to describe energy generation or storage systems that are located on the customer's side of the utility meter, typically used for self-consumption or backup power, and potentially providing grid support services through demand response or net metering programs.

Energy Capacity: The amount of energy that an energy storage system can store, typically measured in kilowatt-hours (kWh) or megawatt-hours (MWh).

Capacitor Energy Storage System: A stationary, rechargeable energy storage system consisting of capacitors, chargers, controls and associated electrical equipment designed to provide electrical power to a building or facility. The system is typically used to provide standby or emergency power, an uninterruptable power supply, load shedding, load sharing or similar capabilities.

Cycles: The number of times an energy storage system can be charged and discharged. A higher cycle life indicates longer battery life.

DC Coupling: A method of connecting a solar array and energy storage system that uses a single inverter, improving overall system efficiency.

Distributed Energy Resource Management System (DERMS): A system that integrates and manages distributed energy resources, such as solar panels, wind turbines, and energy storage systems, to optimize their operation and support the grid.

Distributed Generation (DG): The production of electricity from small-scale, decentralized energy sources, such as rooftop solar panels, small wind turbines, or combined heat and power systems, located close to the point of consumption.

Energy Arbitrage: The practice of buying energy at a lower price during periods of low demand and storing it for later use when prices are higher, thereby profiting from the difference in energy prices.

Energy Storage Management System: An electronic system that protects stationary energy storage batteries systems from operating outside their safe operating parameters and disconnects electrical power to the ESS or places it in a safe condition if potentially hazardous temperatures or other conditions are detected.

Energy Storage System (ESS): One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time.

Energy Storage System, Electrochemical: An energy storage system that stores energy and produces electricity using chemical reactions. It includes, among others, battery ESS and capacitor ESS.

Energy Storage System, Mobile: An energy storage system capable of being moved and utilized for temporary energy storage applications, and not installed as fixed or stationary electrical equipment. The system can include integral wheels for transportation or be loaded on a trailer and unloaded for charging, storage and deployment.

Energy Storage System, Stationary: An energy storage system installed as fixed or stationary electrical equipment in a permanent location.

Energy Storage System, Walk-In Unit: A prefabricated building that contains energy storage systems. It includes doors that provide walk-in access for personnel to maintain, test and service the equipment, and is typically used in outdoor and mobile ESS applications.

Energy Storage System Cabinet: A cabinet containing components of the energy storage system that is included in the 9540—2016 listing for the system. Personnel are not able to enter the enclosure other than reaching in to access components for maintenance purposes.

Energy Storage System Commissioning: A systematic process that provides documented confirmation that an energy storage system functions according to the intended design criteria and complies with applicable code requirements.

Energy Storage System Decommissioning: A systematic process that provides documentation and procedures that allow an energy storage system to be safely de-energized, disassembled, readied for shipment or storage, and removed from the premises in accordance with applicable code requirements.

Flywheel Energy Storage: A mechanical energy storage system that stores energy in a rotating mass. Flywheel energy storage systems have a fast response time and high efficiency.

Grid-Scale Energy Storage: Large-scale energy storage systems, typically with capacities of multiple megawatt-hours or more, designed to provide grid support services, such as frequency regulation, load shifting, and backup power, to help maintain grid reliability and accommodate the integration of renewable energy sources.

Green Hydrogen: An emerging energy storage technology, green hydrogen is produced through the electrolysis of water using renewable energy. It can be stored and used as a fuel when needed.

Hybrid Solar Inverter: A device that combines the functions of a solar inverter and a battery inverter, hybrid solar inverters enable seamless integration of solar power and energy storage systems.

International Building Code (IBC): A module of the code series developed by the International Code Council, that establishes the base code standards for most jurisdictions in the United States. The IBC addresses both health and safety concerns for buildings based upon prescriptive and performance related requirements. The IBC is fully compatible with all other published ICC codes. The code provisions are intended to protect public health and safety while avoiding both unnecessary costs and preferential treatment of specific materials or methods of construction.

International Fire Code (IFC): A module of the code series developed by the International Code Council, it establishes the minimum requirements for fire prevention and fire protection systems using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the new materials and new system designs. This requires utilizing of the most current version.

International Residential Code (IRC): A module of the code series developed by the International Code Council, it applies to all new one- and two-family dwellings and townhomes up to three stories, it is intended to ensure efficient and flexible building designs that protect health and safety and encourage the use of technological advances. It covers all aspects of construction in a single code, including building, plumbing, mechanical services, energy conservation, fuel gas and electrical provisions.

Islanding: A situation in which a portion of the grid, such as a microgrid, becomes disconnected from the main grid and continues to operate independently, maintaining power supply to its local consumers.

Load Shifting: A strategy used to move energy consumption from periods of high demand to periods of low demand, improving the overall efficiency of the electrical grid.

Microgrid: A localized energy system that can operate independently from the main electrical grid, typically consisting of multiple distributed energy resources.

National Electrical Code (NEC), or NFPA 70: Is a regionally adoptable standard for the safe installation of electrical wiring and equipment in the United States. It is part of the National Fire Code series published by the National Fire Protection Association, a private trade association.

National Fire Protection Association: The National Fire Protection Association is a U.S.-based international nonprofit organization devoted to eliminating death, injury, property, and economic loss due to fire, electrical, and related hazards.

Net Metering: A billing arrangement that allows energy consumers with grid-connected distributed energy resources to receive credit for any excess electricity they generate and send back to the grid.

Peak Shaving: The practice of reducing energy demand during peak hours by using stored energy or other resources, helping to alleviate stress on the grid.

Renewable Energy: Energy generated from sustainable resources, such as solar, wind, hydro, geothermal, and biomass, which have little to no negative impact on the environment.

Round-trip Efficiency: The efficiency of an energy storage system when accounting for both charging and discharging processes, typically expressed as a percentage.

Part III. Reserved

Part IV. Reserved

Part V. Electric Vehicle Infrastructure

20.114.410 Purpose.

a. This section is to establish electric vehicle infrastructure (EVI) regulations for the City to allow EVI and to meet the intent of RCW 35.63.126 requiring the City to allow EVI in all zones except for residential zones.
b. This section shall meet the regulations of WAC 51-50-0429, RCW 19.27.540, and RCW 46.08.185.
c. The provisions of this section shall apply to the construction of new buildings and accessory structures, including parking lots and parking garages. Electric vehicle supply equipment (EVSE) shall be installed in accordance with applicable requirements of RCW 19.28 and National Electrical Code, Article 625.

20.114.415 Authority.

Electric vehicle infrastructure is allowed as specified as in the permissible use tables of §20.40 Permissible Uses and required for all new development citywide in accordance with the regulations of this chapter and state regulations.

20.114.420 Definitions.

Definitions related to electric vehicles can be found in §20.08 – Definitions.

20.114.425 Electric Vehicle (EV) Charging Infrastructure.

a. Buildings and accessory structures shall be provided with EV charging stations, EV-Ready parking spaces, and EV-capable parking spaces in accordance with Table 20.114.425T, per the International Building Code occupancy types. Calculations shall be rounded up to the nearest whole number. Where a building contains more than one occupancy, the electric vehicle charging infrastructure percentages of Table 20.114.425T shall be applied to the number of spaces required for each occupancy.
b. Exceptions:
    1. Except for Group A, Group E, and Group M occupancies, on-site parking with less than 10 parking spaces shall not be required to comply with this section.
    2. Group A, Group E, and Group M occupancies shall comply with one of the following, whichever is greater:
        i. The provisions of this section apply only to designated employee parking spaces.
        ii. One of each 200 parking spaces or fraction thereof shall be EV Ready. One of each 200 parking spaces or fraction thereof shall be an EV Charging Station
c. Table 20.114.425T:

Occupancy	Number of EV Charging Stations	Number of EV-Ready Parking Spaces	Number of EV-Capable Parking Spaces
Group A, B, E, F, H, I, M, and S Occupancies	10% of total parking spaces	10% of total parking spaces	10% of total parking spaces
Group R Occupancies			
Buildings that do not contain more than two dwelling units.	Not required	One for each dwelling unit	Not required
Dwelling units with private garages	Not required	One for each dwelling unit	Not required
All Other Group R Occupancies	10% of total parking spaces	25% of total parking spaces	10% of total parking spaces

d. EV-Charging Stations and EV-Ready parking spaces. A minimum of 40-ampere dedicated 208/240-volt branch circuit shall be installed for each EV Ready parking space and each EV Charging Station. The branch circuits shall terminate at a receptacle outlet or EV charger in close proximity to the proposed location of the EV Ready parking space or the EV Charging Station.
e. EV-Capable parking spaces. A listed raceway capable of accommodating a minimum of 40-ampere dedicated 208/240-volt branch circuit shall be installed for each EV-Capable parking space. The raceway shall terminate into a cabinet, box or other enclosure in close proximity to the proposed location of the EV-Capable parking space. Raceways and related components that are planned to be installed underground, and in enclosed, inaccessible or concealed areas and spaces, shall be installed at the time of original construction.

20.114.430 Electrical Room(s) and Equipment.

a. Electrical room(s) and/or dedicated electrical equipment shall be sized to accommodate the requirements of §20.114.425.
b. The electrical service and the electrical system, including any on-site distribution transformer(s), shall have sufficient capacity to simultaneously charge all EVs at all required EV Charging Stations, EV Ready parking spaces, and EV-Capable parking spaces at a minimum of 40-amperes each.
c. Exception: Automatic Load Management System (ALMS) may be used to adjust the maximum electrical capacity required for the EV-Ready and EV-Capable parking spaces. The ALMS must be designed to allocate charging capacity among multiple future EV Charging Stations at a minimum of 16 amperes per EV charger.

20.114.435 Battery Charging Station or Rapid Charging Station – Retrofitting in Existing Development.

a. Required off-street parking spaces within any existing development listed within the zones listed below may be converted to battery charging station spaces or rapid charging station spaces for Battery Electric Vehicles (BEV) or Plug-In Hybrid Electric Vehicles (PHEV), subject to the regulations of this chapter, provided that the battery charging and/or rapid charging stations are accessory to the permitted use(s) on the property.
    1. AMC 20.36.010 – Residential Districts
    2. AMC 20.36.020 – Commercial Districts
    3. AMC 20.36.030 – Manufacturing Districts
    4. AMC 20.36.034 – Aviation Flightline District
    5. AMC 20.36.036 – Medical Services District
    6. AMC 20.36.040 – Public/Semi-Public District
    7. AMC 20.36.080 – Mixed-Use Overlay District
b. At least .65 spaces shall be set aside as electric vehicles waiting spaces for each Level 3 (DCFC or fast charging stations) public electric vehicle charging station provided on site. Waiting spaces for Level 1 and 2 public electric vehicle charging stations shall not be required.
c. The use of any charging station on-site shall not obstruct any vehicular or pedestrian traffic on-site (such as waiting for a charging station space within a drive-aisle or a designated pedestrian crossing) or within a public right-of-way (ROW).
d. Battery or rapid charging station spaces shall be designated for charging electric vehicles only as provided under §20.114.455. Non-electric vehicles or non-charging BEV's or PHEV's shall not be allowed. The type of signage designating these spaces shall be approve by the Community and Economic Development Director or his or her designee.

20.114.440 Electric Vehicle Charging Station Spaces – Allowed as Required Spaces.

a. Electric vehicle charging station spaces shall be allowed to be used in the computation of required off-street parking spaces as provided under §20.114.445, provided; that the electric vehicle charging station(s) is accessory to the primary use of the property.
b. If a publicly owned and publicly available Level 3 (DCFC or fast charging stations) electric vehicle charging station(s) is provided on-site, .65 electric vehicle waiting spaces shall also be provided for each electric vehicle charging station. These spaces shall be in addition to the off-street parking spaces required under §20.114.445.

20.114.445 Off-Street Electric Vehicle Charging Station Spaces.

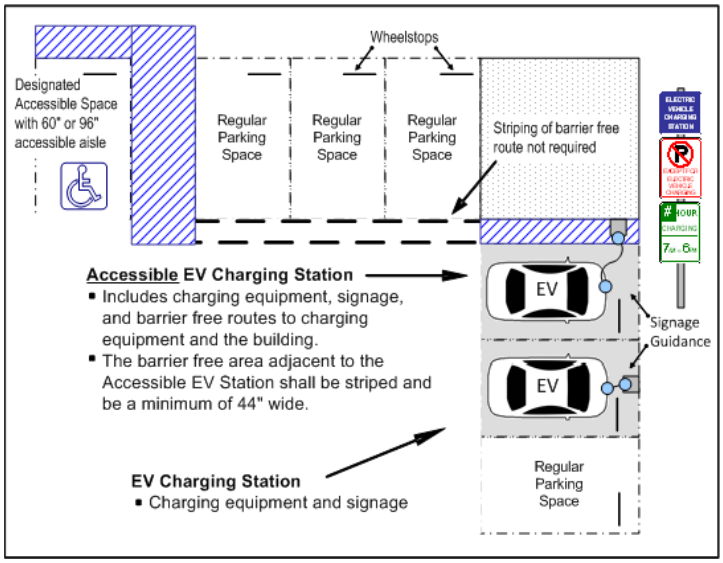
a. The number of electric vehicle charging spaces shall be required per Table 20.114.425T.
b. Location and Design Criteria. The provisions of electric vehicle parking will vary based on the design and use of the primary parking lot. The following required and additional locational and design criteria are provided in recognition of the various parking lot layout options.
    1. Signage. Signage, as required under §20.114.455 for each charging station space, shall be posted indicating the space is only for electric vehicle charging purposes. Days and hours of operations shall be included if time limits or tow away provisions are enforced.
    2. Maintenance. Chargin station equipment shall be maintained in all respects, including the functioning of the charging equipment. A phone number or other contact information shall be provided on the charging station equipment for reporting when the equipment is not functioning, or other problems are encountered.
    3. Accessibility. Where charging equipment is provided within an adjacent pedestrian circulation area, such as a sidewalk or accessible route to the interfere with accessibility requirements of WAC 51-50-005.
    4. Lighting. Where charging station equipment is installed, adequate site lighting shall exist, unless charging is for daytime purposes only.
c. Parking for electric vehicles should also consider the following:
    1. Notification. Information on the charging station, identifying voltage and amperage levels and any time of use, fees, or safety information.
    2. Signage. Installation of directional signs at the parking lot for entrance and at appropriate decision points to effectively guide motorists to the charging station space(s).

20.114.450 Accessible Electric Vehicle Charging Stations.

a. Ten percent (10%) of the accessible parking spaces, rounded to the next whole number, shall be EV Charging Stations. An additional ten percent (10%) of the accessible parking spaces, rounded to the next whole number, shall be EV Ready. Not fewer than one for each type of EV charging system shall be accessible.
b. The electric vehicle charging infrastructure may also serve adjacent parking spaces not designated as accessible parking. A maximum of ten percent (10%) of the accessible parking spaces, rounded to the next whole number, are allowed to be included in the total number of electric vehicle parking spaces required under §20.114.425.
    1. Accessible electric vehicle charging stations should be located in close proximity to the building or facility entrance and shall be connected to a barrier-free accessible route of travel. It is not necessary to designate the accessible electric vehicle charging station exclusively for the use of disabled persons. Below are two options for providing accessible electric vehicle charging stations.
c. Data Collection. To allow for maintenance and notification, owners of any private new electric vehicle infrastructure station that will be publicly available (see definition – electric vehicle charging station public), shall provide information on the station's information. This information shall be submitted to the Community Development Department.

d. Table 20.114.450T

Off-Street Accessible Electric Vehicle Charging Station – Option 1



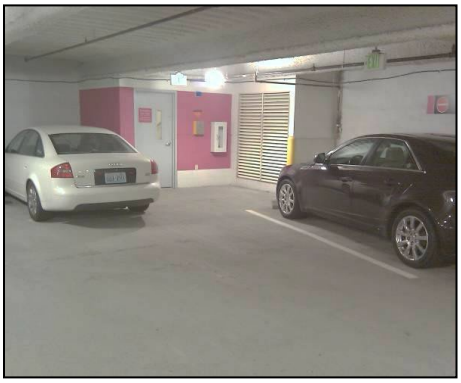


Photo – Puget Sound area parking garage
(Source: ECOtality North America)

Off-Street Accessible Electric Vehicle Charging Station – Option 2

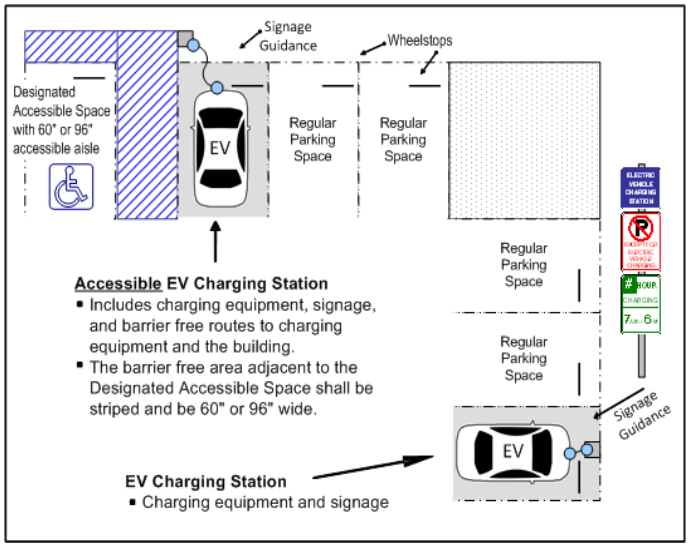


Photo – Fashion Island Shopping Mall,
Newport Beach, CA (Source: Light Moves)

20.114.455 Electric Vehicle Charging Station Spaces – Signage.

a. Publicly available electric vehicle supply equipment must be indicated by vertical signage identifying the station as publicly available electric vehicle supply equipment and indicating that it is only for electric vehicle charging. The signage must be consistent with the manual on uniform traffic control devices, as adopted by the department of transportation under RCW 47.36.030, and contain the information required in RCW 19.94.560. Supplementary signage may be posted to provide additional information including, but not limited to, the amount of the monetary penalty under subsection (b) of this section for parking in the station while not connected to the charging equipment.

b. It is a parking infraction, with a monetary penalty of one hundred twenty-four dollars, for any person to park a vehicle in a parking space served by publicly available electric vehicle supply equipment if the vehicle is not connected to the charging equipment. The parking infraction must be processed as prescribed under RCW 3.50.100, 35.20.220, 46.16A.120, and 46.20.270(2).

c. For purposes of this section, "publicly available electric vehicles supply equipment" has the same meaning as provided in RCW 19.94.010 and described in RCW 19.94.550 and 19.94.555.

d. Off-street public electric vehicle charging station spaces shall provide the following signage in Table 20.114.455T:

<table>
<tr><td>Directional – Off-Street Parking Lot or Parking Garage</td><td> 

12" x 12"
6" x 12"</td></tr>
<tr><td colspan="2">Note: The directional sign for an on-site parking lot or parking garage should be used in the parking facility with a directional arrow at all decision points.</td></tr>
<tr><td rowspan="3">Off-Street EV Parking – Parking Space with Charging Station Equipment</td><td> 

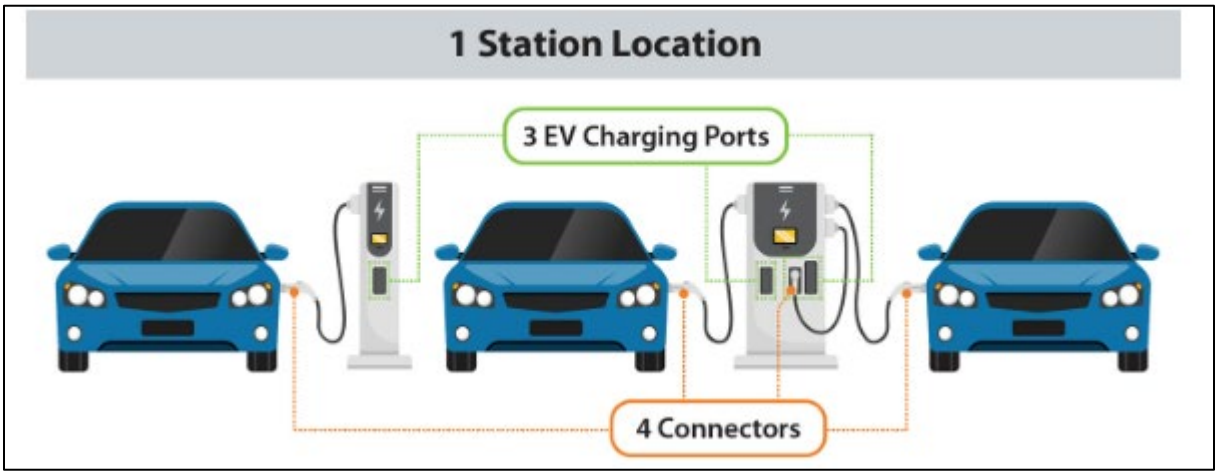
12" x 12"</td></tr>
<tr><td> 

12" x 18"</td></tr>
<tr><td> 

12" x 18"</td></tr>
<tr><td colspan="2">Note: Combination sign identifying space as an electric vehicle charging station, prohibiting non-electric vehicles, with charging time limits. The use of time limits is optional. The blue/white and red/black signs define that only an electric vehicle that is charging can use the spaces. The green sign defines time limits for how long an electric vehicle can be in the space during the specified hours. Outside of the specified hours, electric vehicles can charge for an indefinite period of time.</td></tr>
</table>

20.114.460 Charging Station Location, Options, and Charging Connector Example Diagrams.

a. Table 20.114.460T



EV Charging Options			
Location	Level 1 adds 2 to 5 miles/hour	Level 2 adds 10 to 30 miles/hour	DCFC adds 100 to 200+ miles in 30 minutes
Home	Portable cordset or hardwired unit **Requires:** 120 V outlet	240 V portable or hardwired **Requires:** 240 V outlet or available service	N/A
Work	Portable cordset or hardwired unit **Requires:** Available 120 V outlet	240 V hardwired **Requires:** 208 V or 240 V available service	N/A
Public	Some 120 V outlets are available and designated for public use	Available nationwide in areas where vehicles congregate (shopping centers, airports, public buildings, etc.)	Available in large population centers and along major highways